

TITLE OF THE INVENTION

BALL LAUNCHER

This application is a continuation-in-part of patent application 09/912,581 filed 07/26/2001.

5 BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a device that retrieves a ball from the ground and allows a user to propel the ball outwardly from the device.

10 2. Background of the Prior Art

Playing fetch with man's best friend is a tried and true endeavor played out daily by countless dog owners. The owner throws the ball and good old Rover runs and retrieves the ball and gives the ball back to the owner. This simple game is fun
15 for man and dog alike. This game is not without drawbacks. Many dog owners lack the ability to throw the ball very far, and even those who do have the throwing ability, they want ball to travel further than they can actually throw in order to give the dog a solid workout. Additionally, many times the ball will be
20 returned covered in either mud or slobber and the owner will not want to handle the ball directly, or Rover will drop the ball at his master's feet requiring the owner to bend over to retrieve the ball, neither situation particularly desirable to many dog owners.

In order to address such concerns, devices have been proposed that assist in throwing the ball farther than can be thrown by hand. Such devices work with varying levels of efficiency, yet lack an effective method for easily retrieving
5 the ball from the ground without having to bend over to grasp the ball. Other devices have been proposed that allow retrieval of the ball from the ground yet offer the user limited accuracy in throwing the ball in a given direction.

Therefore, there exists a need in the art for a device that
10 will quickly and easily retrieve a ball from the ground and will allow the user to throw the ball, with accuracy, farther than the user can throw the ball by hand. Such a device must be of relatively simple design and construction and must be relatively easy to use.

SUMMARY OF THE INVENTION

The ball launcher of the present invention addresses the
aforementioned needs in the art. The ball launcher allows a user
to quickly and easily retrieve a ball from the ground without the
5 need to touch the ball and also allows the user to throw the
ball, with high accuracy, farther than the user can throw the
ball by hand. The device is of relatively simple design and
construction and is relatively easy to use.

The ball launcher of the present invention is comprised of
10 an elongate tubular member having an outer surface, and inner
surface, a first end, and an open second end. A handle is
attached to the first end of the tubular member, while an annular
ring encompasses either the inner surface of the tubular member
proximate the open second end or encompasses the periphery of the
15 second end. The annular ring has a second diameter. The annular
ring has a diameter that is greater than the diameter of the ball
that is to be retrieved by the tubular member. The handle can
threadably or otherwise removably attached to the first end of
the tubular member or can be fixedly attached to the tubular
20 member. One ore more ribs can be located about the tubular
member proximate the second open end. A lanyard may be attached
to the handle.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an environmental view of the ball launcher of the present invention.

Figure 2 illustrates retrieval of the ball from the ground 5 using the ball launcher.

Figure 3 illustrates the ball being positioned within the ball launcher after being retrieved.

Figure 4 illustrates the ball being launched by the ball launcher.

10 Figure 5 is a close-up view of retrieval of the ball from the ground using the ball launcher taken from detail 5 in figure 2.

Figure 6 is a sectioned view taken along line 6-6 in figure 5 illustrating the annular ring encompassing the periphery of the 15 second end.

Figure 7 is a sectioned view of the ball illustrating the annular ring encompassing the periphery of the second end.

Figure 8 is a perspective view of the ball launcher with the end cap removed from the handle.

20 Similar reference numerals refer to similar parts throughout the several views of the drawings.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings, it is seen that the ball launcher of the present invention, generally denoted by reference numeral 10, is comprised of an elongate tubular member 12 having an outer surface 14, and inner surface 16, a first end 18, and an open second end 20. A handle 22 is attached to the first end 18 of the tubular member 12. The handle 22 can threadably or otherwise removably attached to the first end 20 of the tubular member 12. The handle 22 may have a hollow compartment 24 therein for holding dog treats DT or other items and have an end cap 26 removably attached to an end of the handle to gain access to the hollow compartment 24. A lanyard can be attached to the handle 22.

A single annular ring 28 is positioned on the tubular member 12 and is positioned either encompassingly about the inner surface 16 of the tubular member 12, proximate the second end 20, or the annular ring 28 encompasses the periphery of the second open end 20 of the tubular member. The annular ring 28 has a diameter that is slightly greater than the diameter of the ball B that is to be retrieved by the tubular member 12.

The tubular 12 member may have one or more ribs 30 located thereon, proximate the second end 20.

In order to use the ball launcher 10 of the present invention, the device 10 is positioned, such that the open second end 20 of the tubular member 12 is positioned over the ball B to

be retrieved. As the ball B has a diameter that is slightly greater than the diameter of the annular ring 28, either the ball B slightly deforms as it passes over the annular ring 28, or the annular ring 28 slightly expands (depending on the material of construction of the tubular member 12 and its annular ring 28) when the device 10 is pressed upon the ball B. Once the ball B clears the annular ring 28, the annular ring 28 prevents the ball, which is relatively light, from easily falling out of the tubular member 12, and the device 10 is flipped so that the ball B can roll to the first end 18 of the tubular member 12. The annular ring 28 will hold all but the heaviest of balls B within the tubular member 12. Once the ball B clears the annular ring 28, the ball B, by being resilient, returns to its original form (if it originally deformed in passing over the annular ring 28).

The user swings the handle 22 of the device 10 causing the ball B to be ejected from the tubular member 12 toward the end of the swing due to the centrifugal and inertial forces exerted on the ball B by the swinging of the device 10. These forces are more than sufficient to overcome the frictional force exerted by the annular ring 28 as the ball B passes over the annular ring 28 on its way to being expelled. The ball B is launched at a relatively large velocity and travels a relatively great distance. If used, the lanyard helps keep the ball launcher 10 from being launched itself, should the user inadvertently let go of the handle 22 during ball B launch.

Advantageously, the tubular member 12 is made from a relatively light material such as plastic in order to allow the user to be able to arcuately swing the device at a relatively high velocity. Accordingly, the ball B, as it accelerates down the tubular member 12 during device 10 swing, the ball B tends to exert a flexing force on the tubular member 12 as it approaches and reaches the second end. This flexing force, if left unchecked, tends to be reflected back to the ball B as it exits the tubular member 12, resulting in a reduction in launch accuracy of the ball B. Employment of the ribs 30 about the tubular member 12 proximate its second end, help minimize the flexing force and help achieve a higher level of accuracy of the ball at launch. The ribs 30 may be added elements to the ball launcher, although for ease of construction, they may be integrally constructed with tubular member 12.

While the invention has been particularly shown and described with reference to an embodiment thereof, it will be appreciated by those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention.